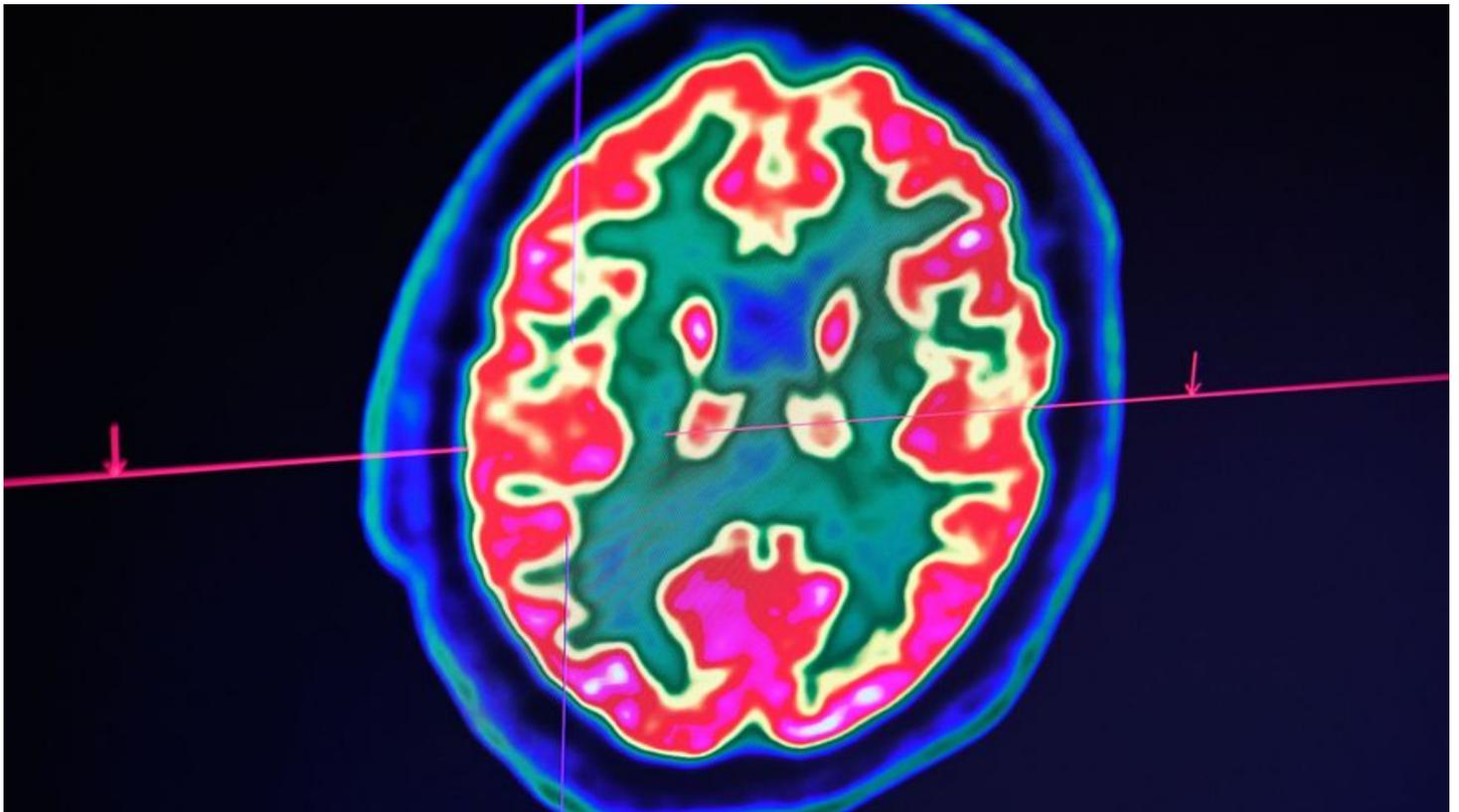


# New computer system can turn brain signals into words

By Ian Sample, The Guardian, adapted by Newsela staff on 08.28.19

Word Count **434**

Level **550L**



A picture of a human brain taken by a positron emission tomography scanner, also called PET scan. Photo by: Fred Tanneau/AFP/Getty Images

Doctors have found a way to help people who can't talk. They go straight to a person's brain.

Scientists did a study on a new system. A person's plan to say specific things shows in brain signals. The signals can be turned into words quickly. It is fast enough to keep up with someone talking.

The system uses computer software that reads the brain. It works only for sentences the software knows. Scientists think it could lead to a better system, though.

There are ways to help people talk now. They are slow, though. People have to use physical movements to pick words or letters.

Doctors at the University of California in San Francisco wanted to make something better. They wanted it to be quicker.

## Devices In Study Recorded Brain Activity

Edward Chang is a doctor. He is the lead scientist on the study.

The work was possible because of three patients. They had epilepsy. This is a condition that has to do with the nerves. It causes seizures. This is when their body suddenly moves on its own. They were about to have surgery for it. Before their operations, all three had tiny devices placed on their brain for a week.

The patients all could speak normally. They agreed to take part in Chang's study. He used the devices to record brain activity while each patient was asked questions. The patients also were asked to read a list of answers.

Using the recordings, Chang and his team built computer programs. The programs learned to match brain activity to the questions and answers.

Once trained, the software could identify questions and responses quickly. It used only brain signals. It was right more than half of the time.

### **Discovering More Ways Of Reading Brain Sentences**

David Moses is a scientist on the study team. They did not use many words in this study, he said. The plan is to use more words in future studies, he said.

The system let patients answer questions about the music they liked. They also could say how well they were feeling. They could reply about whether their room was too hot or cold.

Another hope is to read "imagined speech." That means sentences said in the mind. The system in the study sees brain signals that are sent to move the mouth. For some patients these signals may not be enough, though. More ways of reading sentences in the brain will be needed.

That worries some people. They wonder if devices should show people's private thoughts.

Chang said he just wants to help those who can't talk.